

SCIENCE ON WHEELS

Whole Day
Experience
Program Offerings



To submit a program inquiry, please go to
www.pacificsciencecenter.org/education/science-on-wheels

Science On Wheels SPACE ODYSSEY

Image courtesy: NASA/JPL-Caltech/STScI

ASSEMBLY

Help our astronaut-in-training prepare for a trip to the moon! This assembly takes off with a mind-blowing demonstration about the vacuum of space. Contemplate the real size of the moon and investigate astronomy tools.

Up to 400 students.

INTERACTIVE POP-UP EXHIBITS

Explore meteorites, constellations and Jupiter's storms. You can be an astronomer when you manipulate a robot arm or look at the surface of Mars. What would the Big Dipper look like from the other side of the galaxy? How much do you weigh on Venus? Find out answers to these questions and more when Space Odyssey visits you!

In English and Spanish

CLASSROOM WORKSHOPS

45-minute, hands-on workshops that take place in the classroom (except planetarium workshops). All workshops support NGSS (Next Generation Science Standards).

GRADES K–2

Lighten Up: Our original story leads students in an exploration of the amazing properties of light as we experiment with a unique collection of objects and flashlights to learn about sunlight, reflection, rainbows, and more. **Room must be darkened for best results.**

Your Place in Space: Why is Earth a planet and Pluto a dwarf planet? Explore how astronomers classify objects in our solar system and create your own classification system!

Up in the Sky* (in the portable planetarium): Go on a stargazing adventure in our portable planetarium. Inside, learn your way around the giant “connect-the-dot” pictures in the sky. **Maximum 24 participants.**

GRADES 3–5

Plan It: Mars: Explore the science and mathematics behind planning space travel. Work with a team to plan the next rover mission to Mars. Think like a NASA scientist to stay within budget and ensure the successful completion of your team's mission!

Cosmic Colors: Become classroom astronomers as you use spectroscopic glasses to view celestial gases and discover the true nature of stars. **Room must be darkened for best results.**

Star Search* (in the portable planetarium): Can you “read” the nighttime sky? Learn how to use a star map and then apply your new skills as you hunt for seasonal constellations across the sky. **Maximum 24 participants.**

GRADES 5–8

Spectacular Spectra: What can astronomers learn about the lives of the stars from rainbows? Using spectroscopic glasses, analyze star gases to learn about stellar composition and evolution. **Room must be darkened for best results.**

Lunar Logic: What are the features of the Moon? And why does the Moon change shape? Students will find out as they delve into lunar phases and then apply their new lunar knowledge to explore other moons in our solar system. **Room must be darkened for best results.**

Plan It: Mars: Explore the science and mathematics behind planning space travel. Work with a team to plan the next rover mission to Mars. Think like a NASA scientist to stay within budget and ensure the successful completion of your team's mission!

Star Search* (in the portable planetarium): Can you “read” the nighttime sky? Learn how to use a star map and then apply your new skills as you hunt for seasonal constellations across the sky. **Maximum 24 participants.**



Image courtesy: NASA

***Please see Planetarium Requirements documents for more information.**

Questions? Email edprograms@pacsci.org or call (206) 443-2925

Science On Wheels

BLOOD AND GUTS

ASSEMBLY

Celebrate the wonders of the human body with our Science on Wheels educators! Examine bone marrow, see how lungs inflate, and witness the power of stomach acid as we learn how organ systems work together to make the body work in this party of a program.

Up to 400 students.

INTERACTIVE POP-UP EXHIBITS

Circulate among exhibits that cover an amazing body of knowledge: biology! How steady is your balance? Where is your ulna? Assemble skeletons, analyze x-rays, and scrutinize skulls. Tease your mind with optical illusions and then look inside a real human brain! This exhibit includes real organs from both humans and animals.

In English and Spanish

CLASSROOM WORKSHOPS

45-minute, hands-on workshops that take place in the classroom. All workshops support NGSS (Next Generation Science Standards).

GRADES K–2

Creature Features: Be a zoologist for a day! Explore comparative anatomy by taking a closer look at the skin and teeth of different animals. How does your heart rate compare to a hummingbird or an elephant?

You've Got Nerve: How is your brain like a detective? Use your senses to explore mystery scents and fabrics with different textures. You'll see how information about the world around you is collected, then sent to and processed by the brain. **Includes strong fragrances from essential oils.**

Bone Zone: Why do we have bones anyway? Assemble a mini skeleton and look at x-rays as you learn more about the shape, movement and function of bones. **Includes real bone specimen.**

GRADES 3–5

Bone Zone: Assemble a mini skeleton as you explore the location and function of bones and joints. Use what you learn to look at x-rays and make a diagnosis. **Includes real bone specimen. Appropriate for 3rd and 4th grade. For 5th grade, please consider the Main Frame lesson.**

Piece of Mind: Be awe-inspired by the power of the brain! You'll explore how your mind works, discovering more about memory and other functions of your brain using puzzles and fun activities. **Includes a human brain specimen.**

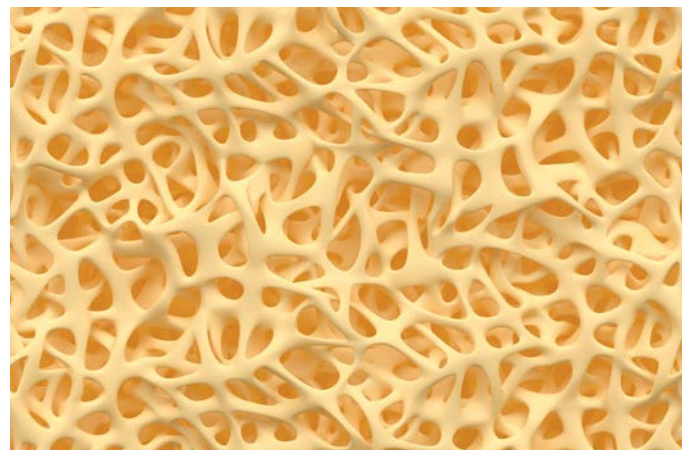
Visual Eyes: Keep your eyes peeled as we explore the science behind vision. Learn the names, locations and functions of the part of the eye. **Includes cow and sheep eye specimen. Ability to darken room allows for best results.**

GRADES 5–8

Main Frame: What do we have in common with a cougar or an opossum? Construct real animal skeletons and compare their form and function. **Students work in groups of 4–6. Includes real bone specimen.**

Visual Eyes: Keep your eyes peeled as we explore the science behind vision. Learn the names, locations and functions of the part of the eye. **Includes cow and sheep eye specimen. Ability to darken room allows for best results.**

Piece of Mind: Be awe-inspired by the power of the brain! You'll explore how your mind works, discovering more about memory and other functions of your brain using puzzles and fun activities. **Includes a human brain specimen.**





Science On Wheels ENGINEERING

ASSEMBLY

Help our educators prepare for the science fair as they design, test, and redesign their innovations. Learn about electrical, civil, and aerospace engineering in this interactive show for large audiences, including your whole school.

Up to 400 students.

INTERACTIVE POP-UP EXHIBITS

Discover what engineering is all about! Construct an arch bridge as tall as you, manipulate marble mazes, and make wheels turn using engines and gears. Make connections and creations while exploring all that engineering does to help us solve problems.

In English and Spanish

CLASSROOM WORKSHOPS

45-minute, hands-on workshops that take place in the classroom. All workshops support NGSS (Next Generation Science Standards).

GRADES K–2

Machine Makeover: Become hands-on inventors and create Lego Duplo Toolo® machines to help solve everyday problems. As mechanical engineers, learners will design a machine that will lift beams or scoop rocks!

Super Structures: What does it take to build a tall structure? Perform tests to discover what makes a strong and stable building using foam blocks, wooden dowels, and mini foundations.

Radical Robots: How can robots help us solve problems? Explore the world of robotics and become real robot programmers. Learners will program Kibos® to move through obstacles and react to the world around them.

GRADES 3–5

Bridge the Gap: Will your bridge survive? How much weight can it hold? Test the limits of a K'NEX® bridge and discover what makes an optimal bridge design through various challenges.

Get In Gear: How does a mechanical engineer design an amusement park ride so that it spins the fastest? Explore the spinning, whirling world of gears.

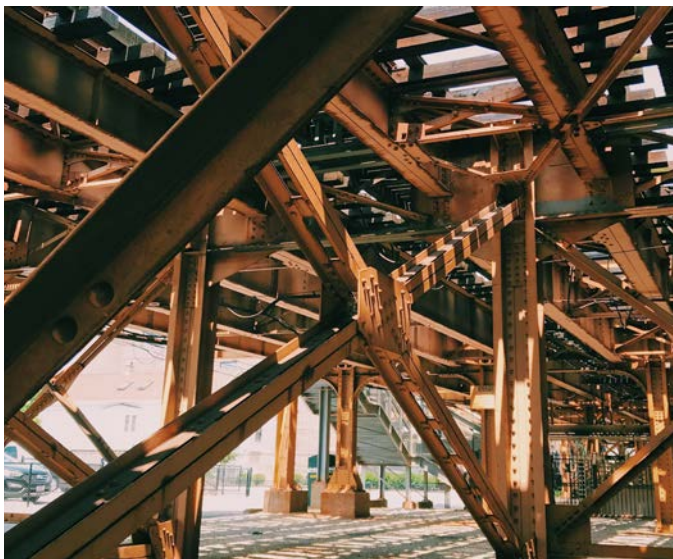
Radical Robots: How can robots help us solve problems? Explore the world of robotics and become real robot programmers. Learners will program Kibos® to move through obstacles and react to the world around them.

GRADES 5–8

Bridge the Gap: Will your bridge survive? How much weight can it hold? Test the limits of a K'NEX® bridge and discover what makes an optimal bridge design through various challenges.

Enviro-Sleuths: Where should the town build the new mall? As environmental engineers, students determine water quality by testing pH and analyzing the presence of bioindicators. Learners use their data to predict the environmental impact on Yourtown, USA, and construct an argument about where to build the mall.

Wired Up: Learn what electricity is and how it flows to turn on lights and power the world around us, then test your electrical engineering skills by building circuits.



Science On Wheels

PHYSICS

ASSEMBLY

This assembly pops with exciting and amazing demonstrations using a mystery liquid (liquid nitrogen) and a Van de Graff generator. Focus on physics as lids mysteriously pop off cans and hairdos become electrified!

Up to 400 students.

INTERACTIVE POP-UP EXHIBITS

It's not magic; it's physics! Explore amazing phenomena, from magnetism to magnification and from pendulums to periscopes. Can you overcome the strength of an electric magnet? Watt does it take to make an electrical circuit? Physics has it all: light, sound, electricity, and motion!

In English and Spanish

CLASSROOM WORKSHOPS

45-minute, hands-on workshops that take place in the classroom. All workshops support NGSS (Next Generation Science Standards).

GRADES K–2

The Force: Can a magnet stick to a rock? Be surprised by the attractive force of magnetism! Discover the mysterious properties of magnets through exploration.

Good Vibrations: Dive into the wonderful world of sound with tuning forks, musical instruments and more. Investigate how people make and hear sounds. **Please note: This lesson can get quite loud.**

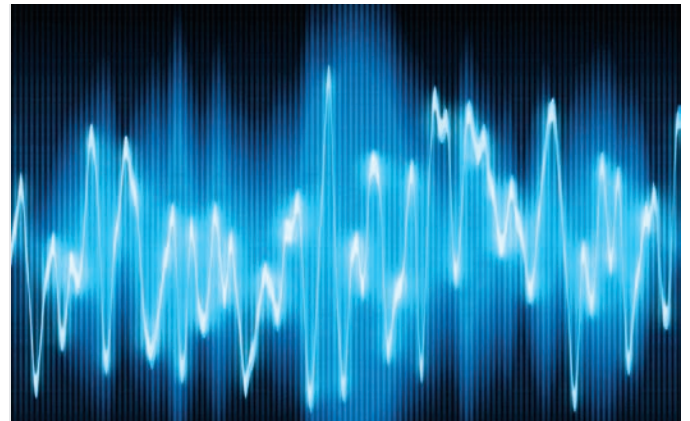
Leaping Lenses: Predict and then observe which objects bounce light and which ones bend light as we discover the many places mirrors and lenses can be found. **Room must be darkened for best results.**

GRADES 3–5

Charged Up: What is electricity and how does it travel? Learn about circuits and generators firsthand by designing electric circuits and generating electricity to power lights.

Good Vibrations: Dive into the wonderful world of sound with tuning forks, musical instruments and more. Investigate differences in pitch, volume and frequency and explore the ear and its ability to hear. **Please note: This lesson can get quite loud.**

Refraction Action: Observe the behavior of laser light as it interacts with different materials to understand reflection and refraction. Discover the differences between convex and concave lenses. **Room must be darkened for best results.**



GRADES 5–8

Electric Magnets: How are electricity and magnetism related? Find out by generating electricity with magnets and using electricity to make magnets.

Refraction Action: Observe the behavior of laser light as it interacts with different materials to understand reflection and refraction. Discover the differences between convex and concave lenses. **Room must be darkened for best results.**

Pulley Power: Learn to lift heavy objects with ease. Design and explore pulley systems to find out how and why this simple machine makes work so much easier. **Document camera recommended.**